

ABSTRACT

An improved method for detecting the presence of humans or animals concealed within in a vehicle uses a combination of the continuous wavelet transform and a ratio-based energy calculation to determine whether the motion detected using seismic sensors placed on the vehicle is due to the presence of a heartbeat within the vehicle or is the result of motion caused by external factors such as the wind. The method performs well in the presence of light to moderate ambient wind levels, producing far fewer false alarm indications. The new method significantly improves the range of ambient environmental conditions under which human presence detection systems can reliably operate.